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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,634	09/23/2003	David Stevenson Spain	465-009US	2179

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EXAMINER	
SHEDRICK, CHARLES TERRELL	
ART UNIT	PAPER NUMBER
2687	

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,634	SPAIN, DAVID STEVENSON	
	Examiner	Art Unit	
	Charles Shedrick	2687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/7/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1-7,10-16, and 19-26** is rejected under 35 U.S.C. 102(b) as being anticipated by **Dupray (U.S. Patent No. 6,249,252)**.

Consider **claim 1**, Dupray clearly discloses a method of deducing a signal strength of a first signal (i.e., $RRSS_{MS}$) at a wireless terminal **140 (figures 4 and 5)** based on the transmit strength of a second signal (i.e., signal transmitted to the base station, which is not clearly shown ,but is shown as a measured variable in the cited work of Dupray), that is transmitted by said wireless terminal **140**; and estimating the location of said wireless terminal **140** based on said signal strength of said first signal (i.e., based on the method shown to deduce or figure out $SRSS_{MS}$ one can clearly use the same method to deduce the first signal using the second signal above. Furthermore, once the signals are computed they are used in correlation with other signals in the signal processing subsystem to locate the mobile station **140) (column 25 line 63 - column 26 line 48,column 28 lines 59-66, and column 37 lines 12-30)**.

Consider **claim 2,** and **as applied to claim 1 above,** Dupray clearly discloses a method wherein deducing said signal strength of said first signal (i.e., $RRSS_{MS}$) is also based on the transmitted strength (i.e., IRPL instantaneous relative power level of the mobile station

transmitter which is directly related to the transmitted power) of said first signal. (**column 25 line 63 - column 26 line 48, column 28 lines 59-66, and column 37 lines 12 - 30**).

Consider **claim 3,** and **as applied to claim 1 above, Dupray** clearly discloses a method wherein deducing said signal strength of said first signal (i.e., $RRSS_{MS}$) is also based on a signal-strength measurement for said second signal (i.e., $RRSS_{BS}$) at the location where said first signal is transmitted (i.e., first and second signals consisting of signals on the forward and reverse path of the same mobile to the same base station(s). Using reciprocity or the formulation of both measurements of the forward wireless signal(s) to a target MS **140** and measurements of a reverse wireless signal(s) transmitted from the target MS to a base station can be utilized.)(**column 25 line 63 - column 26 line 48).**

Consider **claim 4,** and **as applied to claim 1 above**, Dupray clearly discloses a method wherein deducing the said signal strength of said first signal, is also based on an attenuation (i.e. path loss on forward or reverse path) for said second signal between wireless terminal and the location where said first signal is transmitted (i.e., $SRSS_{ms}$ is a corrected indication of path loss (attenuation) and can be used to achieve a more robust correlation in the signal processing function. One path is illustrated, but Dupray clearly states that the same measurements could be used in the opposite direction)(**column 25 line 63 - column 26 line 48).**

Consider **claim 5,** and **as applied to claim 1 above,** Dupray discloses a method wherein estimating the location of said wireless terminal **140** comprises pattern matching (**abstract**) said signal strength of said first signal against a database that associates candidate locations for said wireless with predicted signal strength measurements for said first signal (**abstract, column 5 lines 50 –65, and column 51 line 50 – column 52 line 21**).

Consider **claim 6**, and **as applied to claim 1 above**, Dupray clearly discloses a method wherein estimating the location of said wireless terminal **140** is also based on a signal strength measurement of a third signal (**column 37 line 57-column 38 line 23**)(i.e., signal strength measurements can be made from multiple base stations).

Consider **claim 7**, and **as applied to claim 6 above**, Dupray clearly discloses a method wherein estimating the location of said wireless terminal **140** is based on said signal strength of said first signal and said signal strength measurement of said third signal (**column 37 line 57-column 38 line 23**)(i.e., signal strength measurements can be made from multiple base stations).

Consider **claim 10, Dupray** clearly discloses a method wherein deducing said signal strength of said first signal (i.e., $RRSS_{MS}$) based on a signal-strength measurement of a second signal (i.e., $RRSS_{BS}$) at the location where said first signal is transmitted; and estimating the location of said wireless terminal based on said signal strength of said first signal(i.e., $RRSS_{MS}$) (i.e., first and second signals consisting of signals on the forward and reverse path of the same mobile to the same base station(s). Using reciprocity or the formulation of both measurements of the forward wireless signal(s) to a target MS **140** and measurements of a reverse wireless signal(s) transmitted from the target MS to a base station can be utilized.)(**column 25 line 63 - column 26 line 48).**

Consider **claim 11,** and **as applied to claim 10 above,** Dupray clearly discloses a method wherein deducing said signal strength of said first signal (i.e., $RRSS_{MS}$) is also based on the transmitted strength (i.e., IRPL instantaneous relative power level of the mobile station transmitter which is directly related to the transmitted power) of said first signal. (**column 25 line 63 - column 26 line 48, column 28 lines 59-66, and column 37 lines 12 - 30**).

Consider **claim 12** and **as applied to claim 10 above** , Dupray clearly discloses a method of deducing a signal strength of a first signal (i.e., $RRSS_{MS}$) at a wireless terminal **140 (figures 4 and 5)** based on the transmit strength of a second signal (i.e., signal transmitted to the base station, which is not clearly shown ,but is shown as a measured variable in the cited work of Dupray), that is transmitted by said wireless terminal **140.** (i.e., based on the method shown to deduce or figure out $SRSS_{MS}$ one can clearly use the same method to deduce the first signal using the second signal above. Furthermore, once the signals are computed they are used in correlation with other signals in the signal processing subsystem to locate the mobile station **140)** **(column 25 line 63 - column 26 line 48,column 28 lines 59-66, and column 37 lines 12-30).**

Consider **claim 13,** and **as applied to claim 10 above**, Dupray clearly discloses a method wherein deducing the said signal strength of said first signal, is also based on an attenuation (i.e. path loss on forward or reverse path) for said second signal between wireless terminal and the location where said first signal is transmitted (i.e., $SRSS_{ms}$ is a corrected indication of path loss (attenuation) and can be used to achieve a more robust correlation in the signal processing function. One path is illustrated, but Dupray clearly states that the same measurements could be used in the opposite direction)**(column 25 line 63 - column 26 line 48).**

Consider **claim 14,** and **as applied to claim 10 above,** Dupray discloses a method wherein estimating the location of said wireless terminal **140** comprises pattern matching **(abstract)** said signal strength of said first signal against a database that associates candidate locations for said wireless with predicted signal strength measurements for said first signal **(abstract, column 5 lines 50 –65, and column 51 line 50 – column 52 line 21).**

Consider **claim 15**, and **as applied to claim 10 above**, Dupray clearly discloses a method

wherein estimating the location of said wireless terminal **140** is also based on a signal strength measurement of a third signal (**column 37 line 57-column 38 line 23**)(i.e., signal strength measurements can be made from multiple base stations).

Consider **claim 16**, and **as applied to claim 15 above**, Dupray clearly discloses a method wherein estimating the location of said wireless terminal **140** is based on said signal strength of said first signal and said signal strength measurement of said third signal (**column 37 line 57-column 38 line 23**)(i.e., signal strength measurements can be made from multiple base stations).

Consider **claim 19,** and **as applied to claim 10 above,** Dupray clearly discloses a method comprising removing the effects of fast fading (i.e., delay spread; random phase shift or Rayleigh Fading) (**column 2 line 56 – column 3 line 32 and column 26 lines 23-63**)

Consider **claim 20**, Dupray clearly discloses a method of deducing a signal strength of a first signal (i.e., $RRSS_{MS}$) at a wireless terminal **140** (**figures 4 and 5**) based on the attenuation (i.e.,$SRSS_{MS}$) of a second signal, that is transmitted by said wireless terminal **140**; and estimating the location of said wireless terminal **140** based on said signal strength of said first signal (i.e., based on the method shown to deduce or figure out $SRSS_{MS}$ one can clearly use the same method to deduce the first signal using the second signal above. Furthermore, once the signals are computed they are used in correlation with other signals in the signal processing subsystem to locate the mobile station **140**) (**column 25 line 63 - column 26 line 48,column 28 lines 59-66, and column 37 lines 12-30**).

Consider **claim 21,** and **as applied to claim 20 above,** Dupray clearly discloses a method wherein deducing said signal strength of said first signal (i.e., $RRSS_{MS}$) is also based on the transmitted strength (i.e., IRPL instantaneous relative power level of the mobile station

transmitter which is directly related to the transmitted power) of said first signal. (**column 25 line 63 - column 26 line 48, column 28 lines 59-66, and column 37 lines 12 - 30**).

Consider **claim 22,** and **as applied to claim 20 above, Dupray** clearly discloses a method wherein deducing said signal strength of said first signal (i.e., $RRSS_{MS}$) is also based on a signal-strength measurement for said second signal (i.e., $RRSS_{BS}$) at the location where said first signal is transmitted (i.e., first and second signals consisting of signals on the forward and reverse path of the same mobile to the same base station(s). Using reciprocity or the formulation of both measurements of the forward wireless signal(s) to a target MS **140** and measurements of a reverse wireless signal(s) transmitted from the target MS to a base station can be utilized.)(**column 25 line 63 - column 26 line 48).**

Consider **claim 23 and as applied to claim 20 above** , Dupray clearly discloses a method of deducing a signal strength of a first signal (i.e., $RRSS_{MS}$) at a wireless terminal **140** (**figures 4 and 5**) based on the transmit strength of a second signal (i.e., signal transmitted to the base station, which is not clearly shown ,but is shown as a measured variable in the cited work of Dupray), that is transmitted by said wireless terminal **140**(i.e., based on the method shown to deduce or figure out $SRSS_{MS}$ one can clearly use the same method to deduce the first signal using the second signal above) (**column 25 line 63 - column 26 line 48,column 28 lines 59-66, and column 37 lines 12-30**).

Consider **claim 24,** and **as applied to claim 20 above,** Dupray discloses a method wherein estimating the location of said wireless terminal **140** comprises pattern matching (**abstract**) said signal strength of said first signal against a database that associates candidate

locations for said wireless with predicted signal strength measurements for said first signal (**abstract, column 5 lines 50 –65, and column 51 line 50 – column 52 line 21**).

Consider **claim 25**, and **as applied to claim 20 above**, Dupray clearly discloses a method wherein estimating the location of said wireless terminal **140** is also based on a signal strength measurement of a third signal (**column 37 line 57-column 38 line 23**)(i.e., signal strength measurements can be made from multiple base stations).

Consider **claim 26**, and **as applied to claim 25 above**, Dupray clearly discloses a method wherein estimating the location of said wireless terminal **140** is based on said signal strength of said first signal and said signal strength measurement of said third signal (**column 37 line 57-column 38 line 23**)(i.e., signal strength measurements can be made from multiple base stations)

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8, 9,17,18,27,and 28 rejected under 35 U.S.C. 103(a) as being unpatentable over **Dupray (U.S. Patent No. 6,249,252)** in view of **Okanoue et al. (U.S. Pub. No. US 2003/0064733 A1.**

Consider **claims 8,17, and 27** and **as applied to claims 6,15, and 25**. Dupray clearly discloses a method wherein estimating the location of said wireless terminal **140** is based on a first signal and also based on a signal strength measurement of a third signal (**column 37 line 57-column 38 line 23**)(i.e., signal strength measurements can be made from multiple base stations).

However, Dupray does not clearly disclose if indeed the location of said wireless terminal is based on the absolute magnitude of the difference between said signal strength of the first signal and said signal strength of the third signal.

In the same field of endeavor Okanoue et al. discloses a method of estimating the location of a mobile terminal 4 (figure 1) based on the absolute value of the difference between the reception level (i.e., signal strength) of multiple signals (**abstract, paragraph 0079, and figure 5**).

Therefore it would have been obvious to a person of ordinary skill in the art to calculate the absolute value of the difference between a first signal strength and a third signal strength as taught by Okanoue et al. in the method of Dupray in order to improve the mathematical derivations of signal strength.

Consider **claims 9,18, and 28** and **as applied to claims 6,15, and 25**. Dupray clearly discloses a method wherein estimating the location of said wireless terminal **140** comprises generating a two-dimensional probability distribution for the location of said wireless terminal (i.e., incorporating location estimates based on a joint PDF)(**column 54 lines 18-37**). Dupray

further discloses a method wherein estimating the location of said wireless terminal **140** is based on a first signal and also based on a signal strength measurement of a third signal (**column 37 line 57-column 38 line 23**)(i.e., signal strength measurements can be made from multiple base stations).

However, Dupray does not clearly disclose if indeed the location of said wireless terminal is based on the generating a two-dimensional PDF for the location of said wireless terminal based on the absolute magnitude of the difference between said signal strength of the first signal and said signal strength of the third signal.

In the same field of endeavor Okanoue et al. discloses a method of estimating the location of a mobile terminal 4 (figure 1) based on the absolute value of the difference between the reception level (i.e., signal strength) of multiple signals (**abstract, paragraph 0079, and figure 5**).

Therefore it would have been obvious to a person of ordinary skill in the art to generate a two -dimensional PDF as taught by Dupray based on the absolute value of the difference between a first signal strength and a third signal strength as taught by Okanoue et al. to improve the mathematical derivations of signal strength.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Shedrick whose telephone number is (571)-272-8621. The examiner can normally be reached on Monday thru Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kincaid Lester can be reached on (571)-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Shedrick
Art Unit 2687
July 26, 2005

LESTER G. KINCAID
SUPERVISORY PRIMARY EXAMINER